



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,810	07/17/2003	Jefferson E. Odhner	LUC 2-027-3	1349

7590 02/20/2004

Diane E. Burke  
Mueller and Smith, LPA  
Mueller-Smith Building  
7700 Rivers Edge Drive  
Columbus, OH 43235

EXAMINER

BOUTSIKARIS, LEONIDAS

ART UNIT PAPER NUMBER

2872

DATE MAILED: 02/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/621,810

Applicant(s)

ODHNER ET AL.

Examiner

Leo Boutsikaris

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 24-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8-11, 24-27 and 29-32 is/are rejected.
- 7) ☒ Claim(s) 4, 7, 12, 28 and 33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claim 33 is objected to because of the following informalities:

The word "carrier" should be inserted before the word "having" in line 2, and the word "said" should replace "a" before the word carrier" in line 3, for better clarity.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8, 10, 24-25, 29, 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Welbourn (WO 91/02991).

Regarding claims 1, 24, Welbourn discloses (Fig. 2) an optical diffraction grating 1 formed on element 1a, wherein a magnetic component 5a is positioned on the element 1a along with the grating (see Abstract). Furthermore, in one embodiment, a solenoid, i.e., an electrically energizable coil 5b may be incorporated into substrate 2, thus being magnetically coupled with the magnetic elements 5a (last 2 paragraphs in p. 9). In the above device, the fixed source in the form of coil 5b causes the magnetic component along with the grating to rotate about pivot axis 3

Art Unit: 2872

when current flows therethrough, thus resulting in light which is incident onto the rotating grating to diffract in selected different directions depending on the angle of incidence.

Regarding claims 2, 25, the diffracted light from the rotating grating is projected onto laser 10 in the long external cavity system depicted in Figs. 9-10, through beam shaping lens 12 (first two paragraphs in p. 10).

Regarding claim 3, the center of gravity of element 1a is the location of pivot point 3 (see Fig. 2).

Regarding claims 8, 29, magnetic components 5a, and diffraction grating 1 are affixed to a carrier 1a having a first (top) surface, a second (bottom) surface, a first (left) edge, and a second (right) edge.

Regarding claims 10, 31, the magnetic component includes a first permanent magnet disposed along the first surface adjacent the first edge and a second permanent magnet disposed along the first surface adjacent the second edge and there is a coil magnetically coupled with the first magnet and a second coil magnetically coupled with the second magnet (see Fig. 2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-6, 9, 11, 26-27, 30, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welbourn (WO 91/02991).

Art Unit: 2872

Regarding claims 5-6, 26-27, Welbourn discloses all the limitations of the above claims except for teaching the specific form of the coil, i.e., coils having a single or multiple turns. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the coils with a single or multiple turns, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Here, the result effective variable is the number of turns for each coil, and the number is determined based on the desired strength of the magnetic field induced by the electric current of the coil.

Regarding claims 9, 11, 30, 32, Welbourn discloses all the limitations of the above claims except for teaching that the magnetic elements 5a may be positioned on the bottom surface of the carrier 1a. It would have been obvious to one of ordinary skill in the art at the time the invention was made to position the magnets on the opposite side of the grating, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Here, the result effective variable is the relative position of the permanent magnets relative to the coils, and placement of the magnets on the opposite side of the grating would provide more space for the fabrication of the grating.

### ***Allowable Subject Matter***

Claims 4, 7, 12, 28, 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and if claim 33 is rewritten to overcome the objections set forth supra.

Art Unit: 2872

Claims 4, 7, 12, 28, 33 are allowable over the prior art of record for at least the reason that the prior art fails to teach or reasonably suggest, regarding claim 4, a rotating grating wherein the pivot point is spaced apart from the center of gravity of the element carrying the grating, regarding claim 7, a rotating grating wherein the permanent magnet has principal dimensions commensurate with the grating, regarding claim 12, a rotating grating wherein the carrier has discrete permanent magnetic particles embedded therewithin, regarding claim 28, a method for diffracting light from a rotating diffraction grating, wherein the permanent magnet has principal dimensions commensurate with the grating, and regarding claim 33, method for diffracting light from a rotating diffraction grating, wherein the carrier has discrete permanent magnetic particles embedded therewithin, as set forth by the claimed combination.

The pertinent art of Russell (US 2003/0043373, Fig. 2) discloses a rotating grating used as spectrometer, wherein it is suggested that a coil may be positioned on the same carrier, which supports the grating (see [0016]), resulting in a system having a moving coil/fixed magnet as opposed to the claimed system, which utilizes a fixed coil/moving magnet. Krawczak (US 4,398,798, Fig. 2) discloses a fixed coil/moving magnet rotating grating system, with the difference from the claimed system being that the grating is not a holographic grating but is formed by a magnetizable film having stripe domains.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Leo Boutsikaris whose telephone number is 571-272-2308.

Leo Boutsikaris, Ph.D.  
Patent Examiner, AU 2872  
January 28, 2004

